



## **Strategic Initiative No. 5 – Accelerate Soil Excavation and On-Site Disposal Facility (OSDF)**

### **Subproject Description**

Following 37 years of operations, air deposition, and waste disposal activities, Fernald soil and debris became contaminated with radionuclides and chemicals at levels that necessitated remediation.



As required by the Operable Unit 2 and Operable Unit 5 Records of Decision, contaminated soil above negotiated cleanup levels is being excavated. The site areas requiring excavation cover 400 acres and include the former Production Area, Solid Waste Landfill, Lime Sludge Ponds, Southern Waste Units, and soil under the Waste Pits and Silos. Additionally, building foundations, concrete storage pads, parking lots, roads, and below-grade piping will be removed as part of soil excavation.

Through Fernald's five Records of Decision, it was decided that the site's smaller volume of more highly contaminated material will be disposed off site and the larger volume of material with low levels of contamination that can be safely contained will be disposed on site. The OSDF is a result of this "balanced approach" to waste management at Fernald. Excavated soil and debris will be disposed in the OSDF, or if it does not meet the on-site waste acceptance criteria, at an off-site disposal facility. Combined with waste streams from other site remediation activities, a total of 2.5 million cubic yards of soil and debris will be placed in the OSDF. Approximately 85% of the material destined for the OSDF will be soil and soil-like material and the remaining 15% will be debris from the demolition of site buildings. In accordance with Fernald's Records of Decision, the OSDF will only accept wastes from the Fernald site.

### **Execution Strategy**

Soil cleanup activities include soil sampling, analysis, design, excavation, segregation, treatment (if necessary), transportation, disposal, certification, and restoration of contaminated areas. Excavated soil and debris will be transported to the OSDF, or if it does not meet the on-site waste acceptance criteria, to an off-site disposal facility.

Prior to initiating soil excavation, predesign sampling is performed to fill data gaps and to more precisely determine the extent of contamination requiring excavation. The predesign data is used in combination with as-built drawings of the site's building and underground utilities to determine the excavation depths such that soil above the cleanup levels and at- or below-grade debris and utilities are removed. Areas that do not meet the on-site waste acceptance criteria and must be shipped off site for disposal are excavated first, followed by removal of the soil and debris that will be transported to the OSDF. Real-time scanning instruments are used in place of time-consuming physical sampling to determine the levels of radionuclide contamination in the soil as excavation proceeds. When the specified excavation depths are reached, sampling is conducted to certify that the remaining soil meets established cleanup levels.

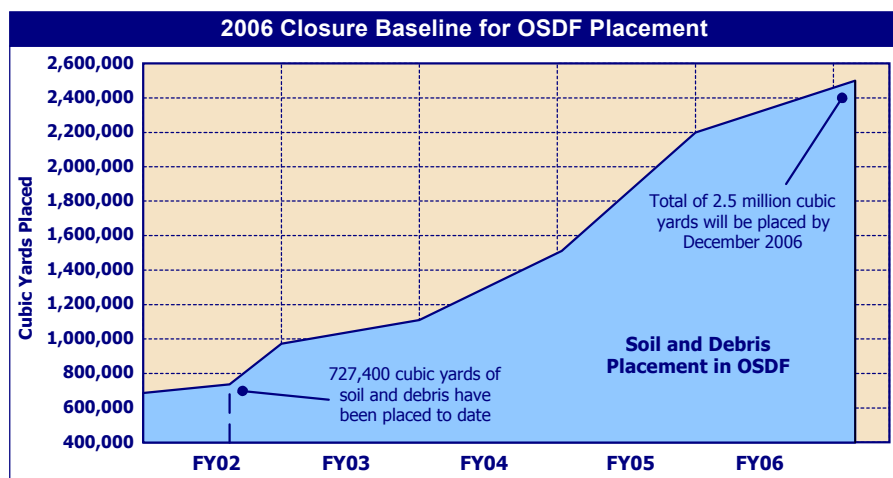
In the 2009 baseline, soil excavation in the Silos area was planned to be conducted after Silos remediation was complete. In order to accelerate soil excavation in the Silos area, contaminated soil is now being removed prior to constructing the Silos treatment infrastructure. This work is scheduled for completion in September 2002. It is anticipated that little or no follow-up excavation will be necessary to certify that the area meets established soil cleanup levels, following the D&D of the Silo 1&2 treatment facility in 2006.

When completed, the OSDF will be constructed of up to 2.5 million cubic yards of soil and debris and be approximately 800 feet wide, 3,700 feet long, and 65 feet high. Construction of the OSDF will proceed in phases from north to south and it is anticipated that seven cells will be needed to accommodate the site's waste.

### **New Strategies to Achieve 2006 Closure**

In order to accelerate site closure from 2009 to 2006, the following initiatives were developed for the Soil Excavation and On-Site Disposal Facility subproject:

- Adopt a self-performance work execution approach
- Complete removal of impacted soil in the footprint of the Silos 1&2 treatment facility prior to the facility's construction



*Under the new contract, the OSDF subproject will place 1.8 million cubic yards of soil and debris in addition to the 727,400 cubic yards already placed.*

To increase the efficiency of waste placement activities and further improve the long-term stability of the OSDF, approval was received from U.S. EPA and Ohio EPA to modify the thickness of soil between individual debris layers from four feet to two feet, resulting in a thicker soil cushioning layer beneath the cap. The 8.75-foot thick caps and the 5-foot thick liners are constructed of both natural materials (such as clay and gravel) and man-made materials (such as geosynthetic liners) and the liners have leak detection and leachate collection systems. Leachate is treated at the Advanced Wastewater Treatment Facility.

The subproject has adopted a self-performance execution approach for excavation and OSDF construction. This approach removes the need for redundant oversight of field activities and provides greater flexibility for accelerating the work. The money saved from this approach is being used to accelerate other site activities to meet 2006 closure.

### Current Subproject Status

The subproject is 30% complete with 727,400 cubic yards of soil and debris placed into the OSDF. Cell 1 is complete with Cells 2 and 3 receiving waste. Cell 4 and Cell 5 liner construction is underway and will be complete in the 2002 construction season.

Fifty-two percent of the site has been certified as meeting the site cleanup levels. By December 2006, the remaining 1.8 million cubic yards of soil and debris will have been placed, OSDF construction will be complete, and the remaining portion of the site that is included in the closure definition will be certified.

### Subproject Status:

- 52% of site certified as clean
- Subproject is 30% complete
- 727,400 cubic yards of soil and debris placed into the OSDF
- Cell 1 cap is complete
- Cells 2 and 3 are receiving waste
- Cost to Complete: \$232 million
- Site closure activities will be complete in December 2006

### Key Actions and Responsibilities

The following table lists the key actions needed to accelerate this subproject to meet 2006 site closure. Also included are the responsible organizations, the status of the key action, and the date that the key action is needed. The key actions for all eight strategic initiatives (subprojects) are compiled in Attachment 2.

Key Actions and Responsibilities for the Soil Excavation and On-Site Disposal Facility Subproject			
Action	Responsibility	Status	Date Needed
Gain regulatory agency approval to maintain three cells open simultaneously and to reduce the intervening layer thickness	DOE-OH	Complete	—
Accelerate start of Cell 4 and Cell 5 liner construction in FY02	Fluor Fernald	Complete	—
Adopt a self-performance work execution approach	Fluor Fernald	Complete	—
Complete removal of impacted soil in the footprint of the Silos 1&2 treatment facility prior to the facility's construction	Fluor Fernald	In progress	9/30/02
Significantly increase annual OSDF placement rates	Fluor Fernald	In progress	Ongoing